



RESEARCH TOPIC CLI21

Development and validation of 3D printed models for preoperative planning and intraoperative guide in joint replacement revision surgery

Clinical Unit name

Hip Diseases and Joint Replacement Surgery Unit
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Abstract

3D printing has the potential to change the clinical field, improving medicine and healthcare, while making it affordable, accessible, and personalized. 3D models of patient-specific (PS) anatomical structures find great use in the surgical field, mainly in the operation planning and intraoperative positioning. They also help in decreasing the operation time, blood and bone loss, and trauma for the patient while ensuring a better recovery. The Humanitas “3D Innaovation Lab” will be provide based on education, innovative research, and clinical patterns. The latter involves 3D printing along with modelling software, providing the surgeon with a physical 3D model of the PS anatomy. 3D models add supplementary interpretable information to the surgeon, helping in the planning of complex procedures, such as hip and knee arthroplasty revisions with severe bone defects. The anticipation of anatomic difficulties provided by the models allows the surgeon to plan the operation more accurately, reducing operation time and increasing safety.

Scientific references

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Type of contract

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